UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
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QUALITY ASSURANCE MEMORANDUM FOR ORGANIC CHEMICAL ANALYSES

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To: Bruce Long, Project Manager
Office of Compliance and Enforcement, USEPA Region 10

From: Gerald Dodo, Supervisory Chemist
Office of Environmental Assessment, USEPA Region 10 Laboratory

Subject: Quality Assurance Review for the Rainier Commons Project
Project Code: OOO-138A
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The following is a quality assurance review of the data for PCB Aroclor analysis of a wipe and solids samples from the Rainier Commons project. The analyses were performed by EPA chemists at the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA Laboratory guidelines.

This review covers the following samples:

09124300	09124301	09124302	09124303

Data Qualifications

Comments below refer to the quality control specifications outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). No excursions were required from the method Standard Operating Procedure.

The quality control measures which did not meet Laboratory criteria are annotated in the title of each affected subsection with **"Laboratory/QAPP Criteria Not Met."**

For those tests for which the USEPA Region 10 Laboratory has been accredited by the National Environmental Laboratory Accreditation Conference (NELAC), all requirements of the current NELAC Standard have been met. The conclusions presented herein are based on the information provided for the review.

Sample Transport and Receipt

Upon sample receipt, no conditions were noted that would affect data quality.

Sample Holding Times

The concentration of an analyte in a sample or extract of a sample may increase or decrease over time depending on the nature of the analyte. For this reason, holding time limits are recommended for samples and extracts. The samples were extracted within 14 days of collection. Extracts were analyzed within 40 days of preparation. No qualifiers were applied based on holding times.

Sample Preparation

Samples were prepared according to the method outlined in USEPA Method 3580A and standard operating procedure (SOP) OR_C082 for PCB Aroclors in oil and wipes. The solid samples consisted of paint chip material which was extracted with solvent. No qualification of the data was required based on sample preparation.

Initial Calibration and Calibration Verification

The calibration functions generated for the initial calibration met method and SOP criteria. The Minimum Reporting Level (MRL) is the lowest point for which the calculated value tests within laboratory specified criteria. Calibration verification checks met criteria. No qualification was required based on calibration or calibration verification.

Laboratory Control Samples

Data for laboratory control samples/laboratory control sample duplicates (LCS/LCSD) are generated to provide information on the accuracy and precision of the analytical method and the laboratory performance. The LCS/LCSD recoveries were within the QAPP criteria.

Blank Analysis

Method blanks were analyzed with the sample preparation batch to evaluate the potential for laboratory contamination and effects on the sample results. PCB Aroclors were not detected above the reporting limit in the blanks.

Surrogate Spikes

Surrogate recoveries are used to help in the evaluation of laboratory performance on individual samples. The surrogate recoveries met the individual surrogate criteria of 50-150% except for sample 09124300. This sample resulted with <50% surrogate recovery and the reported results were qualified J/UJ. Surrogate recoveries were not determined where large dilutions were necessary for analysis. These are qualified as "NA."

9. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

An MS/MSD analysis was performed using sample 09124303 (S1/S2). The recoveries were not measurable due to the spiking level being too low relative to the native concentration.

10. Compound Quantitation

The initial calibration functions were used for calculations. Reported quantitation limits were based on the initial calibration standards and sample size used for the analysis. All results for analytes that are not detected are assigned the value of the quantitation limits or a value based on the interference of a detected, overlapping Aroclor or background interference and the 'U' qualifier attached.

The final results are slightly different from the preliminary values provided earlier.

11. Identification

Aroclors detected in samples were judged to be acceptable with regard to chromatographic pattern matching with standards.

12. Data Qualifiers

Below are the definitions for the codes used when qualifying data from these analyses. When more than one quality issue was involved, the most restrictive qualifier has been attached to the data.

Qualifier/ Remark Code		Definition (Codes Assigned to Values)
NA	-	Not applicable.
U	-	The analyte was not detected at or above the reported value.
J	-	The identification of the analyte is acceptable; however the reported value is an estimate.
UJ	-	The analyte was not detected at or above the reported value. The reported value is an estimate.

The usefulness of qualified data should be treated according to the severity of the qualifier in light of the project's data quality objectives. Should questions arise regarding the data, contact Steve Reimer at the Region 10 Laboratory, phone number (360) 871-8718.

13. Definitions

Accuracy - the degree of conformity of a measured or calculated quantity to its actual value.

Duplicate Analysis – when a duplicate of a sample (DS), a matrix spike (MSD), or a laboratory control sample (LCSD) is analyzed, it is possible to use the comparison of the results in terms of relative percent difference (RPD) to calculate precision.

Internal standards - Compounds used to help evaluate instrument analytical performance for individual samples. Internal standards provide an instrument response for reference to accurately

quantify the analytes for all associated instrumental analyses.

Laboratory Control Sample (LCS) - a clean matrix spiked with known quantities of analytes. The LCS is processed with samples through every step of preparation and analysis. Measuring percent recovery of each analyte in the LCS provides a measurement of accuracy for the analyte in the project samples. A laboratory control sample is prepared and analyzed at a frequency no less than one for every 20 project samples.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) - Sample analyses performed to provide information about the effect of the sample matrix on analyte recovery and measurement within the project samples. To create the MS/MSD, a project sample is spiked with known quantities of analyte(s) and the percent recovery of the of analyte(s) is (are) determined.

Method Blank- An analytical control that is carried through the entire analytical procedure. The method blank is used to define the level of laboratory background and reagent contamination. A method blank is prepared and analyzed for every batch of samples at a minimum frequency of one per every 20 samples. To produce unqualified data, the result of the method blank analysis is required to be less than the MRL and less than 5 times the amount of analyte found in any project sample.

Minimum Reporting Level (MRL) - the smallest measured concentration of a substance that can be reliably measured using a given analytical method.

Peak Integrations - The output of many analytical instruments is a peak which represents the quantity of analyte in the sample. The instrument automatically integrates the peak area to provide the concentration of the analyte; however, sometimes these peaks need to be manually integrated by the analyst.

Precision – the degree of mutual agreement or repeatability among a series of individual results.

Reference materials – Samples with analyte values that are homogeneous and well established. This allows the reference material to be used to assess the accuracy of the measurement method.

Relative Percent Difference – The difference between two sample results divided by their mean and expressed as a percentage.

Surrogate Spikes - usually isotopically labeled versions of analytes of concern or compounds not typically found in the environment. They are used to help evaluate laboratory preparation and analysis performance for individual samples. The surrogate spike differs from the LCS (above) in that it is placed in each project sample to assess preparation and analytical efficiency.